



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|                                  |   |                        |
|----------------------------------|---|------------------------|
| In re Patent Application of      | ) |                        |
| Robert M. Carlson, et al.        | ) | Group Art Unit: 2811   |
| Application No.: 10/621,718      | ) | Examiner: Unassigned   |
| Filed: July 16, 2003             | ) | Confirmation No.: 1570 |
| For: DIAMONDOID-BASED COMPONENTS | ) |                        |
| IN NANOSCALE CONSTRUCTION        | ) |                        |

**INFORMATION DISCLOSURE STATEMENT**  
**TRANSMITTAL LETTER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Enclosed is a First Information Disclosure Statement and accompanying form PTO-1449 for the above-identified patent application.

- ☒ No additional fee for submission of an IDS is required.
- ☐ The fee of \$180.00 (1806) as set forth in 37 C.F.R. § 1.17(p) is also enclosed.
- ☐ A statement under 37 C.F.R. § 1.97(e) is also enclosed.
- ☐ A statement under 37 C.F.R. § 1.97(e), and the fee of \$180.00 (1806) as set forth in 37 C.F.R. § 1.17(p) are also enclosed.
- ☐ Charge \$\_\_\_\_\_ to Deposit Account No. 02-4800 for the fee due.
- ☐ A check in the amount of \$\_\_\_\_\_ is enclosed for the fee due.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

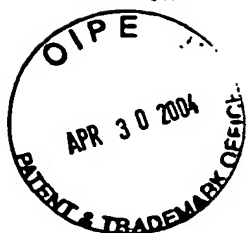
Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: April 29, 2004

By: Stephen F. Powell  
Stephen F. Powell  
Registration No. 43,014  
Redwood Shores, California Office  
(650) 622-2300

P.O. Box 1404  
Alexandria, Virginia 22313-1404



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

|                                  |   |                        |
|----------------------------------|---|------------------------|
| In re Patent Application of      | ) |                        |
|                                  | ) |                        |
| Robert M. Carlson, et al.        | ) | Group Art Unit: 2811   |
|                                  | ) |                        |
| Application No.: 10/621,718      | ) | Examiner: Unassigned   |
|                                  | ) |                        |
| Filed: July 16, 2003             | ) | Confirmation No.: 1570 |
|                                  | ) |                        |
| For: DIAMONDOID-BASED COMPONENTS | ) |                        |
| IN NANOSCALE CONSTRUCTION        | ) |                        |
|                                  | ) |                        |

**FIRST**  
**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, Applicants hereby submit the following information in conformance with 37 C.F.R. §§ 1.97 and 1.98.

Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. However, copies of the listed U.S. patents and U.S. patent application publications are not enclosed since it is no longer required according to the July 11, 2003 waiver of the requirement for copies of cited U.S. patents and U.S. patent application publications in national patent applications filed after June 30, 2003 and international applications entering the national stage under 35 U.S.C. § 371 after June 30, 2003.

The documents are being submitted within three (3) months of the filing or entry of the national stage of this application or before the first Office Action on the merits, whichever is later. Since the documents are being filed within the time period set forth in 37 C.F.R. § 1.97(b) no fee or statement is required.

To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner-initialed copy of this form be returned to the undersigned.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: April 29, 2004

By: Stephen F. Powell  
Stephen F. Powell  
Registration No. 43,014  
Redwood Shores, California Office  
(650) 622-2300

P.O. Box 1404  
Alexandria, Virginia 22313-1404

Substitute for forms 1449A/PTO &amp; 1449B/PTO

APR 30 2004

ATTORNEY'S DKT NO.  
005950-832APPLICATION NO.  
10/621,718FIRST INFORMATION DISCLOSURE  
STATEMENT BY APPLICANTAPPLICANT  
Robert M. Carlson, et al.FILING DATE  
July 16, 2003GROUP  
2811

## U.S. PATENT DOCUMENTS

| Examiner Initials | Document Number | Kind Code (if known) | Name of Patentee or Applicant of Cited Document | Issue/Publication Date (MM-DD-YYYY) |
|-------------------|-----------------|----------------------|---|-------------------------------------|
|                   | 5,019,660       |                      | Chapman et al.                                  | 05-28-1991                          |
|                   | 5,053,434       |                      | Chapman   | 10-01-1991                          |
|                   | 6,287,765       | B1                   | Cubicciotti                                     | 09-11-2001                          |
|                   | 6,510,359       | B1                   | Merkle et al.                                   | 01-21-2003                          |
|                   | 6,531,107       | B1                   | Spencer et al.                                  | 03-11-2003                          |
|                   |                 |                      |   |                                     |
|                   |                 |                      |   |                                     |
|                   |                 |                      |   |                                     |
|                   |                 |                      |   |                                     |

## FOREIGN PATENT DOCUMENTS

| Examiner Initials | Document Number | Kind Code (if known) | Country | Date of Publication (MM-DD-YYYY) | Translation Yes | No |
|-------------------|-----------------|----------------------|---------|----------------------------------|-----------------|----|
|                   |                 |                      |         |                                  |                 |    |
|                   |                 |                      |         |                                  |                 |    |
|                   |                 |                      |         |                                  |                 |    |
|                   |                 |                      |         |                                  |                 |    |
|                   |                 |                      |         |                                  |                 |    |

## NON PATENT LITERATURE DOCUMENTS

| Examiner Initials | Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
|-------------------|---|
|                   | Z. ASFARI, et al., "Molecular Machines," <i>Journal of Inclusion Phenomena and Macrocyclic Chemistry</i> , 2000, pp. 103-118, Vol. 36, Kluwer Academic Publishers, The Netherlands  |
|                   | C.R. BRUNDLE, et al., "Atomic Force Microscope," <i>Encyclopedia of Materials Characterization</i> , 1992, p. 703, Butterworth-Heinemann, Stoneham, MA, USA   |
|                   | K.E. DREXLER, "Nanoscale Structural Components," <i>Nanosystems: Molecular Machinery, Manufacturing, and Computation</i> , 1992, pp. 253-273, John Wiley & Sons, Inc., New York, NY, USA  |
|                   | K.E. DREXLER, "Mobile Interfaces and Moving Parts," <i>Nanosystems: Molecular Machinery, Manufacturing, and Computation</i> , 1992, pp. 273-319, John Wiley & Sons, Inc., New York, NY, USA   |
|                   | K.E. DREXLER, "Intermediate Subsystems," <i>Nanosystems: Molecular Machinery, Manufacturing, and Computation</i> , 1992, pp. 320-341, John Wiley & Sons, Inc., New York, NY, USA  |
|                   | K. E. DREXLER, "Molecular Nanomachines: Physical Principles and Implementation Strategies," 1994, <i>Annu. Rev. Biophys. Biomol. Struct.</i> , pp. 377-405, Vol. 23, Annual Reviews Inc., USA   |
|                   | A.A. GAKH, et al., "Molecular gearing systems," <i>Chemtech</i> , November 1997, pp. 26-33  |
|                   | M.F. HAWTHORNE, et al., "Building to Order," <i>Chemistry in Britain</i> , April 1996, pp. 32-36  |
|                   | C. JOACHIM, et al., "Single Molecular Rotor at the Nanoscale," <i>Structure and Bonding</i> , 2001, pp. 1-18, Vol. 99, Springer-Verlag Berlin Heidelberg, New York, NY, USA   |
|                   | P. KASZYNSKI, et al., "Toward a Molecular-Size 'Tinkertoy' Construction Set. Preparation of Terminally Functionalized [n]Staffanes from [1.1.1]Propellane," <i>J. Am. Chem. Soc.</i> , 1991, pp. 601-620, Vol. 114  |
|                   | T.R. KELLY, et al., "Rotary Motion in Single-Molecule Machines," <i>Structure and Bonding</i> , 2001, pp. 19-53, Vol. 99, Springer-Verlag Berlin Heidelberg, New York, NY, USA  |
|                   | J. MULLER, et al., "Rigid-Rod Oligo-p-Carboranes for Molecular Tinkertoys. An Inorganic Langmuir-Blodgett Film with a Functionalized Outer Surface," <i>J. Am. Chem. Soc.</i> , 1992, pp. 9721-9722, Vol. 114   |
|                   | E.A. RIETMAN, "4.3.5 Molecular 'Legos' and 'Tinkertoys'," <i>Molecular Engineering of Nanosystems</i> , 2001, pp. 148-149, Springer-Verlag Berlin Heidelberg, New York, NY, USA   |
|                   | P.F.H. SCHWAB, et al., "Molecular Rods. 1. Simple Axial Rods," <i>Chem. Rev.</i> , 1999, pp. 1863-1933, Vol. 99, No. 7  |
|                   | M. SHEN, et al., "Finite $T_d$ Symmetry Models for Diamond: From Adamantane to Superadamantane ( $C_{35}H_{38}$ )," <i>J. Am. Chem. Soc.</i> , 1992, pp. 497-505, Vol. 114  |
|                   | D. SU, et al., "Molecular tectonics," <i>Supramolecular Chemistry</i> , 1995, pp. 171-178, Vol. 6, Overseas Publishers Association, Amsterdam, The Netherlands  |

|  |  |                               |
|--|--|-------------------------------|
| Substitute for forms 1449A/PTO & 1449B/PTO<br><br><b>FIRST INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b> | ATTORNEY'S DKT NO.<br>005950-832       | APPLICATION NO.<br>10/621,718 |
|  | APPLICANT<br>Robert M. Carlson, et al. |                               |
|  | FILING DATE<br>July 16, 2003           | GROUP<br>2811                 |
|  |  |                               |

| NON PATENT LITERATURE DOCUMENTS |   |
|---------------------------------|---|
| Examiner<br>Initials            | Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
|                                 | J. VACEK, et al. "A molecular 'Tinkertoy' construction kit: Computer simulation of molecular propellers," <i>New J. Chem.</i> , 1997, pp. 1259-1268, Vol. 21, No. 12, CNRS-Gauthier-Villars   |
|                                 | J. VACEK, et al., "Molecular dynamics of a grid-mounted molecular dipolar rotor in a rotating electric field," <i>PNAS</i> , May 8, 2001, pp. 5481-5486, Vol. 98, No. 10  |
|                                 |   |

|                       |  |                    |  |
|-----------------------|--|--------------------|--|
| Examiner<br>Signature |  | Date<br>Considered |  |
|-----------------------|--|--------------------|--|

EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. **SEND TO:** Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.